

REMARKS

Claims 1-27 were previously presented for examination. Claims 4 and 14 have been cancelled. Claims 28-40 have been added. Thus, claims 1-3, 5-13 and 15-40 are pending in the application.

In an effort to expedite prosecution, claims 1 and 4 have been combined. Support for the recited amounts can be found on pages 3-4 of the original specification as well as in the original claims.

Claim Objections

Claims 12 and 15 have been objected to by the Examiner. The typographical errors in claims 12 and 15 have been corrected, thus obviating the objection made by the Examiner.

Claim Rejections – 35 USC 112

Claims 4-5, 9-12, 14-20 and 27 have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The claims have been amended to better conform with the standards of U.S. practice and procedure. Specifically, terms which are the narrower statements of the range/limitation such as “preferably,” “more preferably” and “generally” have been deleted in the claims.

With regard to claim 11, the Examiner alleges that the recitation “said percentage calculated as above indicated” renders the claim indefinite because it is not clear where the above calculation is found. This wording refers to lines 1-2 of claim 11, wherein it is stated that the percentage refers to the weight of the starting tomato product.

Concerning claim 15, the Examiner raises an issue with respect to the limitation “the mass to be filtered” in line 2. The Examiner states that there is insufficient antecedent basis for this limitation in the claim. In response, the Applicant recites tomato juice, tomato passatas, tomato cubes, chopped tomatoes and/or peeled tomatoes, as set forth in claim 16. In view of the amendment discussed above, “the mass to be filtered” refers to any of the starting tomato products indicated in claim 15. If necessary, the Applicant is willing to recite “hot break” or “cold break” processes.

With regard to claim 16, the Examiner states that the expressions “tomato juice” and “tomato passata” in lines 1-2 have insufficient basis in the claim. The Applicant submits that the rejection is overcome by the amendment to claim 15.

With respect to claim 18, it is submitted that since the recitation of claim 18 relates to an embodiment of step a), the term “suspension” refers not only to tomato juice, but to any of the tomato materials used in step a). The Examiner should note that in claim 15 the expression “tomato product” is used. Considering that claim 18 refers explicitly to step a) of claim 15, it is submitted that one skilled in the art understands that the term “suspension” is equivalent to, or interchangeable with, “the mass to be filtered.”

Claim Rejections – 35 USC 101

Claim 14 has been cancelled. Claims 28, 29 and 38 have been added in order to recite method-of-use embodiments of the claimed invention, in accordance with U.S. practice.

Claim Rejections – 35 USC 102

de la Cuadra

Claims 1-14 have been rejected under 35 USC 102(a) as being anticipated by de la Cuadra (US 2003/0224100). This rejection is traversed. Withdrawal of the rejection is respectfully requested.

The Examiner has stated that de la Cuadra et al. disclose a tomato-based product, having about 8% water (i.e. about 5% from the pulp wherein the pulp comprises 7% water and about 3% from the serum wherein the concentrated serum is 30° Brix) and about 67% dry residue wherein the dry residue has a ratio of soluble tomato solids to insoluble tomato solids of 40:60 (Example 1). See the paragraph bridging pages 6-7 of the Office Action. Together with Example 1 the Examiner has also cited Examples 2 and 5 of the reference (see page 7 of the Office Action).

Example 1 refers to a tomato based spread composition, and it is noted that in said example both the thick stream and the thin stream are used. The relevant amounts are, respectively, 70.6% and 4.7%.

In fact, it is stated that the fraction comprising mainly insoluble tomato solids, i.e., the thick stream, comprised about 7% water, to keep the product pumpable. Therefore, the solid content of the thick stream is 93%.

However, the skilled artisan does not know from de la Cuadra the dry residue of the thin stream, since for said stream the reference discloses only the Brix value, i.e. 30° Brix (P35), corresponding to a soluble solids content of 30%.

Therefore, claim 1 is novel, for instance, as compared with Example 1 of de la Cuadra based on the following grounds:

- The document discloses a thick stream which has a total solids content of 93%, that is outside the present limits, and
- Since in the mixture of thick stream and thin stream the total solids content of the thin

stream is not known, the total solids content of the thick stream+thin stream is also not known.

The same can be repeated for the other examples of the reference cited by the Examiner.

Claims 2-13 are novel since they depend from a novel independent claim.

Claim Rejections Under 35 USC 103

de la Cuadra

The rejection of claims 15-27 under 35 USC 103(a) as being unpatentable over de la Cuadra et al. (US 2003/02241000) in view of Succar is traversed. Reconsideration and withdrawal thereof are requested.

The technical problem to be solved by the present invention was to have available tomato products with an improved saucing power, in particular on pasta, and also an improved preservation power. An improved preservation power means a lower value of tomato product decomposition over time and therefore an improved shelf life.

In the background of the invention, it is reported that tomato products are prepared from tomato juice obtained by fruit trituration and seed and peel separation. The tomato juice is an aqueous suspension of insoluble solids in an aqueous solution. From the tomato juice other products such as tomato passatas and tomato concentrates can be obtained through concentration processes. The methods industrially used are reverse osmosis, cryoconcentration and concentration by evaporation. With the first method, temperatures of about 70°C are necessary to have satisfactory concentration yield; further, the membrane of this process must be cleaned to remove the pollutants.

The second method is not applicable due to the high solids content in tomato suspensions. In practice, in industry the third method is used, i.e., concentration by evaporation. The heating

required by this process, its duration and the maximum temperature used bring in organoleptic and nutritional variations of the tomato products. The former have a caramel taste and a typical cooking ("cotto") aroma; the latter are due to the degradation of the carotenoids present in the tomato, specifically of lycopene.

In Italy, most commercial tomato products, to be diluted before use, are classified as follows (% by wt):

| | |
|-----------------------------|-------|
| semiconcentrate dry residue | 12%; |
| concentrate (C) | 18%; |
| double concentrate (DC) | 28% ; |
| triple concentrate (TC) | 36% . |

The saucing power, that is the capability of the tomato product to stick to foods to which it is added, is higher for the TC than for the other commercial tomato products. However, the concentrated products must be diluted before their use due to their too strong and unpleasant taste. Generally, all the commercial tomato concentrates having a dry residue >12% wt. show taste problems. Consequently, the higher saucing power of the concentrates is lost. On the other side, semiconcentrates (dry residue 12% by wt.) do not require any dilution, as they have a pleasant taste, but they have a very poor saucing power. The same can be repeated for tomato passatas, which, as known, have a dry residue =10% by wt.

The solution to the above technical problem is recited in the instant claims. In fact, the Applicant has surprisingly and unexpectedly found tomato products which do not require either dilution or concentration before their use and showing an improved saucing power and an improved preservation power.

The tomato products are obtainable by the process described in the specification and including the separation of the tomato serum, that affords to obtain tomato products having a water insoluble solids content in the dry residue up to 70% by wt. Besides, the addition of serum

improves or varies the taste. Therefore, it is possible to adjust the ratio of water insoluble solids/water soluble solids in the dry residue. By varying the amount of water soluble solids in the total solids, the taste properties can be suitably dosed. The olfactory properties (fresh tomato smell) mainly depend on the insoluble solids content in the total solids.

The tomato products of the present invention contain a reduced water amount and are particularly suitable to form compositions in admixture with foods and foodstuffs even containing a high water amount. The tomato taste is preserved.

Furthermore, the Applicant has unexpectedly and surprisingly found that the tomato products of independent claim 1 incorporate fats without showing any serum separation. These compositions can be used as a sauce.

The tomato products and the compositions obtained therefrom have an improved saucing power and improved organoleptic and nutritional properties in comparison with the tomato products on the market. Further, tomato products with fats and/or oils and/or cheeses can also be used as such as foods, for example, to be spread on bread.

The Applicant has found that the amount of water insoluble solids in the tomato product for conferring an improved saucing power must be at least 18% by wt., preferably 20% by wt. of the dry residue. It has to be remarked that the amount of water insoluble solids in the commercial tomato products is not higher than 15% in the dry residue.

As noted above, the tomato products claimed herein maintain the organoleptic and nutritional properties of the fresh tomato. This represents a great advantage over the commercial products. It must be noted that the taste of the commercial tomato sauces depends on the variety of tomatoes used and on their ripeness, while the tomato sauces of independent claim 1 have a constant taste from one production batch to another. This represents a long felt need for any industrial plant and is strongly desired from the commercial point of view. The Applicant has unexpectedly and

surprisingly found that the taste variation depends on the ratio of water soluble solids/water insoluble solids present in the dry tomato residue.

According to the Examiner, independent process claim 15 and dependent claims 16-27 are obvious over the above prior art combination on the following grounds:

- De la Cuadra differs from the claims herein since the reference does not disclose concentrating the recovered pulp or pulp stream and does not explicitly disclose that the starting tomato base is maintained under a slow stirring.
- Succar teaches that the tomato material, i.e., tomato juice, is provided to the decanter, the decanter and internal cake scraping auger are rotated (i.e. stirring the tomato juice), and the cake portion is separated from the serum portion. Besides, Succar et al. teach that the scraping auger (i.e., centrally placed stirrer, shape of a helix) has a scroll speed differential of 20-40 rpm.

Succar

This reference provides a system and method that processes tomatoes into a stream of tomato juice. According to the process disclosed by Succar, the juice stream is separated or fractionated into two portions, a serum portion and a cake portion. After these portions are separated, the serum portion is concentrated using an evaporator and the concentrated tomato serum recombined with the cake portion.

The gist of Succar was to find a system and a method for producing a tomato paste having improved viscosity, color, nutrients and flavor in a more economical manner than in the prior art.

The separation process disclosed in the reference for fractionating the juice into two portions is carried out by means of a decanter represented in Fig. 4.

In said figure, decanter 135 includes a centrifuge body that rotates around a bearing 410. The decanter includes an input 420, weir 430, serum output 440, cake output 450 and a scraping mechanism 10 such as a rotating auger 460.

Juice 132 is provided to the decanter 135 through the input 420. As the decanter rotates, the thicker cake portion is separated from the serum section. The cake portion gravitates to the inner surfaces 402 of the centrifuge body 400. The less dense serum portions remain in the general middle area of the decanter, i.e., the thinner serum does not tend to migrate to the inner surfaces of the centrifuge body.

The weir 430 serves as a wall to hold the cake and block it from exiting through the serum outlet 440. Thus, the weir 430 separates the cake and serum portions and permits the less dense, thinner serum 140, to pass through the decanter through the serum outlet 440.

The weir height is selected such that the cake portion is retained against the inner surface of the centrifuge body, thereby separating the cake from the serum. The cake is removed from the decanter via cake output 450 near the bottom of the body. The cake is "scraped" off the inner surface of the rotating 25 centrifuge bowls by the rotating scraper or auger 460. The auger surfaces rotate along the inner surface of the centrifuge body, thereby removing the cake 145a from the inner surface. The cake is then directed to the cake outlet or discharge port 450. In the reference it is also stated that cake and serum separation can be adjusted by adjusting the rotation speed of the decanter, rotating speed of the internal cake scraping auger (scroll speed differential), product temperature and the height of the weir).

Succar uses a decanter operating at approximately 3400 revolutions per minute (rpm). Succar states also that the separation efficiency of the decanter is improved as the temperature increases: a temperature of approximately 180 to 190 degrees Fahrenheit (82°C-88°C) typically results in separation of the cake and serum portions at the example speed.

The Examiner in the Office Action has mentioned a scroll speed differential of 20-40 ppm. We note that said scroll speed differential is the difference between the rotation speed of the decanter and the rotating speed of the internal cake scraping auger.

Summary and Conclusion

As discussed above, there is no mention in the prior art combination on how to solve the technical problem of the present invention, i.e., to obtain tomato products showing the property combinations of improved saucing combined with improved preservation power.

The Examiner should note that the property of the tomato products to stick to foods, i.e., the saucing power, is not even mentioned in de la Cuadra or Succar. The same is true for the preservation power.

The Applicant believes that the technical problem of de la Cuadra resides in preparing tomato-based products having thick consistency and the process for their preparation. Of course, the tomato products can be used as pasta sauce, ketchup, pizza toppings, juices, etc. Disclosure is made of the conventional uses in the art.

One skilled in the art does not find in de la Cuadra any motivation to prepare a particular composition in order to obtain a tomato composition with an improved saucing power. One skilled in the art would not know how to modify de la Cuadra with Succar in order to arrive at tomato compositions with improved saucing power.

One skilled in the art, in the field of prior art on tomato products, would look for something that would give some motivation to combine specific references in order to solve the technical problem. We note that the technical problem of de la Cuadra relates to the preparation

of tomato products having a thick consistency, and that of Succar to the preparation of tomato products having similar properties.

With respect to the decanter of Succar the following is noted:

- The separation of the tomato fractions is effected by centrifugation, wherein the cake portion is retained against the inner surface of the centrifuge body and the less dense serum portion remains in the general middle area of the decanter. Therefore, the decanter of the Succar reference does not motivate those skilled in the art to use a separation solid liquid apparatus based on filtration instead of on centrifugation, as in steps a) and b) of the process of the present invention. Besides, in the process of the present invention there is no solid adhering or accumulating on the walls.
- There is no slow stirring in the decanter. Succar, as said above, discloses that an exemplary decanter operates at approximately 3400 rpm with a scroll speed differential of 20-40 rpm. This means that the rotating speed of the auger 460 is from 20 to 40 rpm more (or less) than that of the decanter. Therefore, one skilled in view of the operating conditions of the decanter disclosed by Succar is not motivated to use a low stirring in a separation process of tomato products.
- The prior art teaches that the separation into the cake portion fraction and the serum portion fraction is improved with increasing temperature and a range of 82°C-88°C is explicitly suggested by Succar.

The tomato products of the present invention show, as said above, a combination of properties, i.e., improved organoleptic properties, improved saucing power and improved shelf life. The Applicant submits that the combination of properties is not suggested by the prior art. Neither de la Cuadra nor Succar mention the saucing power of tomato products or the shelf life of tomato products.

Therefore, the claims are novel and non-obvious over the cited prior art. Since the products of the invention can be obtained with the process of claim 15, that does not include any

sterilization step, the Applicant submits that the improved shelf life is a property also of the products of the invention that have not yet undergone a sterilization step.

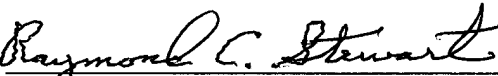
Accordingly, it is believed that the claims herein should be passed to issue. Favorable action is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Raymond C. Stewart Reg. No. 21,066 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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